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STATION IDENTIFICATION PYLONS

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Stainless steel station identification (ID) pylons.

1.02 MEASUREMENT AND PAYMENT

A. General: Measurement and payment for station identification pylons will be either by the lump-sum method or by the unit-price method as determined by the listing of the bid item for station identification pylon indicated in the Bid Schedule of the Bid Form.

B. Lump Sum: If the Bid Schedule indicates a lump sum for station identification pylons, the lump-sum method of measurement and payment will be in accordance with Section 01 20 00, Price and Payment Procedures, Article 1.0.3.

C. Unit Price: If the Bid Schedule indicates a unit price for station identification pylons, the unit-price method of measurement and payment will be as follows:

1. Measurement:

   a. Station identification pylons will be measured for payment by the individual unit (each), installed in place.

2. Payment: Station identification pylons will be paid for at the indicated Contract unit prices for the computed quantities as determined by the measurement method specified in Article 1.02.C.1, herein.

1.03 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. ASTM A240/A240M Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.

2. ASTM A269/A269M Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service

3. ASTM A276/A276M Standard Specification for Stainless Steel Bars and Shapes

4. ASTM A312/A312M Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipe

5. ASTM A554 Standard Specification for Welded Stainless Steel Mechanical Tubing

6. ASTM A743/A743M Standard Specification for Castings, Iron-Chromium, Iron-Chromium-Nickel, Corrosion Resistant, for General Application

7. ASTM A968/A968M Standard Specification for Chromium, Chromium-Nickel, and Silicon Alloy Steel Bars and Shapes for Corrosion and Heat-Resisting Service

B. National Association of Architectural Metal Manufacturers (NAAMM):

1. AMP 500 Metal Finishes Manual

C. Specialty Steel Industry of North America (SSINA):

1. Stainless Steel Fasteners – Designer Handbook

D. American National Standards Institute (ANSI)/American Welding Society (AWS):

1. ANSI/AWS D10.4 Recommended Practices for Welding Austenitic Chromium-Nickel Stainless Steel Piping and Tubing

1.04 SUBMITTALS

A. General: Refer to Section 01 33 00, Submittal Procedures; and Section 01 33 23, Shop Drawings, Product Data, and Samples; for submittal requirements and procedures.

B. Shop Drawings: Submit detailed Shop Drawings of pylons, showing dimensions, details of fabrication and installation. Shop drawings shall indicate how lighting elements are accessed for service. Indicate materials, profiles, joinery, finishes, fasteners, anchorages and accessories. Indicate welded connections by AWS symbols.

C. Product Data: Submit manufacturers' product data of manufactured items including translucent materials and vinyl films.

D. Samples: Submit samples of the following:

1. Stainless steel sample showing the proposed finish. Sample shall be a minimum 24 inches long by eight inches wide. Prepare samples on metal of the same alloy and thickness to be used in the Work.

2. Translucent acrylic material with sample vinyl letter and proposed blue translucent material.

3. Proposed blue translucent material: Submit samples of the full range of manufacturer's blue colors.

E. Submit structural calculations and details for pylons prepared, signed, and sealed by a Professional Engineer currently registered in the State of California. Include structural calculations for entire pylon and its anchorage assembly. Provide

calculations for loadings and stresses. Structural calculations shall include anchorage to ground or other substrate, including anchor bolts, assemblies, foundation, and base plate, as applicable. Include seismic and wind loadings. Include calculations for each pylon location if required to suit individual site characteristics.

F. Qualifications: Refer to Article entitled “Quality Assurance” herein for qualification requirements.

G. Mill Test Reports:

1. Submit certified mill tests reports of stainless steel materials, covering chemical analysis and physical properties of each heat of steel from which the material for stainless steel will be furnished, in conformance with the hereinafter specified ASTM Specifications.

1.05 QUALITY ASSURANCE

A. Stainless steel work shall conform to the quality requirements of the herein referenced Specialty Steel Industry of North America, “Designer Handbook: series standards.

B. Iron Contamination (Rust): Stainless steel with iron contamination will not be accepted. Dies for forming stainless steel components shall be stainless steel or chrome-plated to prevent embedment of minute iron particles. All stainless steel work shall be polished and cleaned after fabrication and installation to prevent rust susceptibility.

C. Material Certifications: Steel materials which are not properly certified as conforming to specified ASTM Specifications will be rejected.

D. Contractor’s Professional Engineer’s Qualifications: The engineer responsible for structural design required under this Section shall have a record of successful experience providing engineering services for installations similar in design and scope to the work of this Section. Upon the Engineer’s request, provide a reference list with client contact information.

E. Manufacturer and Fabricator Qualifications:

1. Minimum five years’ experience in the fabricating of similar stainless steel work to that specified for similar projects.

2. Provide a project reference list and photos of public or commercial exterior projects with stainless steel work currently in use of similar type and size by manufacturer.

F. Pre-Installation Conference: Conduct conference at the Jobsite prior to the installation of the first pylon. Conference shall be attended by the Contractor, and Contractor’s fabricator, electrician, and installer and the Engineer.

1.06 STORAGE, DELIVERY, AND HANDLING

A. Store pylons and accessories in clean, dry location, away from uncured concrete and masonry.

B. If pylons are protected with a protective covering:

1. Ensure that protective coverings do not damage items being protected. Provide air circulation under coverings when necessary to prevent damage to pylons.

2. Restore protective coverings which have been damaged during shipment.

C. Minimize handling of pylons at Jobsite; exercise care and prevent damage including damage to finishes.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Base plate assemblies, posts, pylons, framing connectors, anchors, and other components shall be stainless steel with the exception of those items specifically required to be fabricated from other materials.

B. Stainless Steel: Provide austenitic stainless steel Type 316 complying with the following requirements:

1. Tubing: ASTM A554 or ASTM A269/A269M.

2. Pipe: ASTM A312/A312M.

3. Plate: ASTM A240/A240M or ASTM A968/A968M.

4. Bar Stock: ASTM A276/A276M.

5. Castings: ASTM A743/A273M, Grade CF 8 or CF 20

C. Fasteners: Comply also with applicable requirements of SSINA's "Stainless Steel Fasteners." Of same basic stainless steel alloy as fastened metal, unless otherwise indicated. Do not use metals which are corrosive or otherwise incompatible with metals joined. Anchors and fasteners shall be tamper-resistant where exposed.

D. Anchors and Inserts: Provide stainless steel anchors of type and size required for type of loading and installation condition shown, as required by the Contractor's engineer, unless otherwise indicated.

E. Grout: Refer to Section 03 61 11, Non-Shrink Grout, for requirements.

2.02 PRODUCTS

A. Photosensor: Photosensor as proposed by the Contractor and approved by the Engineer.

B. Bird Wire, Vinyl Film, Light-Emitting Diodes (LED), and power supply for LEDS: As specified in Contract Specifications Section 26 50 00, Lighting.

C. Acrylic Sheet: 0.236 inch thick, UV resistant, satin texture, optimum light diffusion, extruded, scratch resistant surface. Light diffusing beads evenly distributed through material. Texture retained after thermoforming.

1. Colors: Translucent white and translucent “BART” blue

2.03 DESIGN CRITERIA

A. Contract Drawings establish the design intent, product dimensions, materials, minimum material thickness, concealment of fastenings, and standard of quality. It is the intention of the Contract Documents to rely on the Contractor to finalize details subject to the Engineer’s approval of the shop drawings. The Contractor shall finalize details subject to its construction technique such as those predicated on machinery, experience, and shop practices.

B. Provide concealed fasteners for interconnection of pylon components and for their attachment to other work except where otherwise indicated or when exposed fasteners are unavoidable.

C. Design pylons to accommodate construction tolerances and deflection of structural members.

D. Detail pylons to permit structural and thermal movement of components without buckling, undue stress on fasteners, or other detrimental effects.

E. Allow for thermal movement resulting from the following maximum change (range) in ambient temperature, in the design, fabrication, and installation of pylons to prevent buckling, opening up of joints and overstressing of welds and fasteners. Base design calculations on actual surface temperatures of metals due to both solar heat gain and night time sky heat loss.

1. Temperature Change (Range): 100 degrees Fahrenheit, (55.5 degrees Celsius) or as recommended by fabricator and approved by the engineer.

F. Provide adjustment to accommodate misalignment of structure without distortion or damage.

G. Provide vandal-resistant fasteners and other details.

H. Detail pylons to accommodate replacement of lightening elements and acrylic lens (panels).

I. Detail to accommodate removal of pylon for purposes of its relocation or repair.

J. No part of frame or other internal parts shall project into the light parth or otherwise cast shadows onto the translucent portions of the pylons. Lamps shall be spaced and arranged so that the illuminated portions of the pylons have uniform light intensity.

2.04 FABRICATION – GENERAL

A. Shop fabricate, finish, and assemble pylons to the greatest extent possible.

B. Refer to Section 05 05 22, Metal Welding. Comply with AWS for recommended practices in shop welding. Stainless steel welded connections shall be made in accordance with applicable requirements of ANSI/AWS D10.4. Clean exposed welded joints of all welding flux, and dress on all exposed and contact surfaces. Welded joints shall be ground and dressed smooth to match adjacent surfaces and specified finish. Welded joints shall be ground and dressed so that the shape and profile of the items welded is maintained and so that the weld seam is invisible in the finished work. Ends shall be closed with matching material.

C. Provide welds behind finished surfaces without distortion or discoloration of exposed side.

D. Welded Connections: Fabricate stainless steel pylon for the interconnections of members by welding where shown.

E. Fabricate stainless steel pylon from hollow structural section (HSS) steel.

F. Non-Welded Connections: Fabricate stainless steel pylon for interconnection of members by means of concealed mechanical fasteners and fittings where shown. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.

G. Finish: Satin, Non-directional, (orbital) polish, matte surface finish, without grain. Finish shall match approved BART finish samples and existing pylons. Process to achieve finish is as follows:

1. Starting with 316 Stainless plates you must have a #20 RA finish applied. (This is the closest thing to a NAAMM #6 finish in the process).

2. After fabrication of “Tube” the following steps are needed:

   a. Grind all surfaces with rotary finisher using 150 grit disc to smooth welds.

   b. Grind all surfaces with rotary finisher using 120 grit disc.

   c. Grind all surfaces with rotary finisher using 220 grit disc.

   d. DA random orbital sander on all surfaces using 120 grit paper.

   e. DA random orbital sander on all surfaces using 80 grit paper.

   f. DA all surfaces with heavy fiber Scotch bright until even “scratch” is achieved.

   g. After finishing all surfaces passivate entire pylon.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install pylons as indicated and in accordance with the approved Shop Drawings, using workers skilled and experienced in the installation of the type of work involved.

B. Set products accurately in location, alignment and elevation, plumb, level and true measured from established lines and levels. Provide temporary bracing or anchors in formwork for items which are to be built into concrete or similar construction.

C. Fit exposed connections accurately together to form tight, hairline joints or, where indicated, with uniform reveals and spaces as shown. Where cutting, welding and grinding are required for proper fitting and jointing of stainless steel, restore finishes to eliminate any evidence of such corrective work.

D. Do not cut or abrade finishes which cannot be completely restored in the field. Return items with such finishes to the shop for required alterations, followed by complete refinishing or provide new units as required.

E. If pylons are protected with a protective covering:

1. Restore protective coverings which have been damaged during shipment or installation of the work. Remove protective coverings only when there is no possibility of damage from other work yet to be performed at the same location.

2. Retain protective coverings intact and remove simultaneously from similarly finished items to preclude non-uniform weathering and discoloration.

3. Remove protective coverings at the time of Substantial Completion or earlier with the approval of the Engineer.

F. Field welding, where required, shall conform to requirements specified herein for shop welding under “Fabrication.” All welds shall be ground and polished smooth to match adjacent finish surfaces.

3.02 CLEANING OF STAINLESS STEEL

A. All stainless steelwork shall be cleaned of all dirt, dust, oil and grease, fingerprints, atmospheric and aqueous corrosion, and iron contamination, rinsed with clear water, and then polished before the Engineer’s final inspection that establishes Substantial Completion of the Contract.

B. The cleaning method shall be the mildest treatment necessary for the problem.

C. Corrosion shall be removed by scouring lightly with an abrasive cleaner, rubbing in the direction of the finish grain of the metal. In cases of extreme discoloration, use scouring sponges or steel wool, made only from stainless steel, and then rinsed thoroughly with clean water.

D. Iron contamination shall be removed by passivation, as chemical cleaning method involving the use of nitric acid. This cleaning method shall be performed in the shop only, unless no other treatment at the site is successful. Passivation treatment at the site shall be performed under the continuous supervision of the stainless steel fabricator, employing all required safety precautions and protection of adjacent surfaces.

E. Weldments may require additional fine grinding to remove corrosion or iron contamination if no other cleaning method is successful.

F. All cleaned and rinsed stainless steelwork shall be dried with clean towels and then polished by buffing. If a dull or satin finish is indicated, then buff only enough to remove any remaining residue.

END OF SECTION 10 14 29